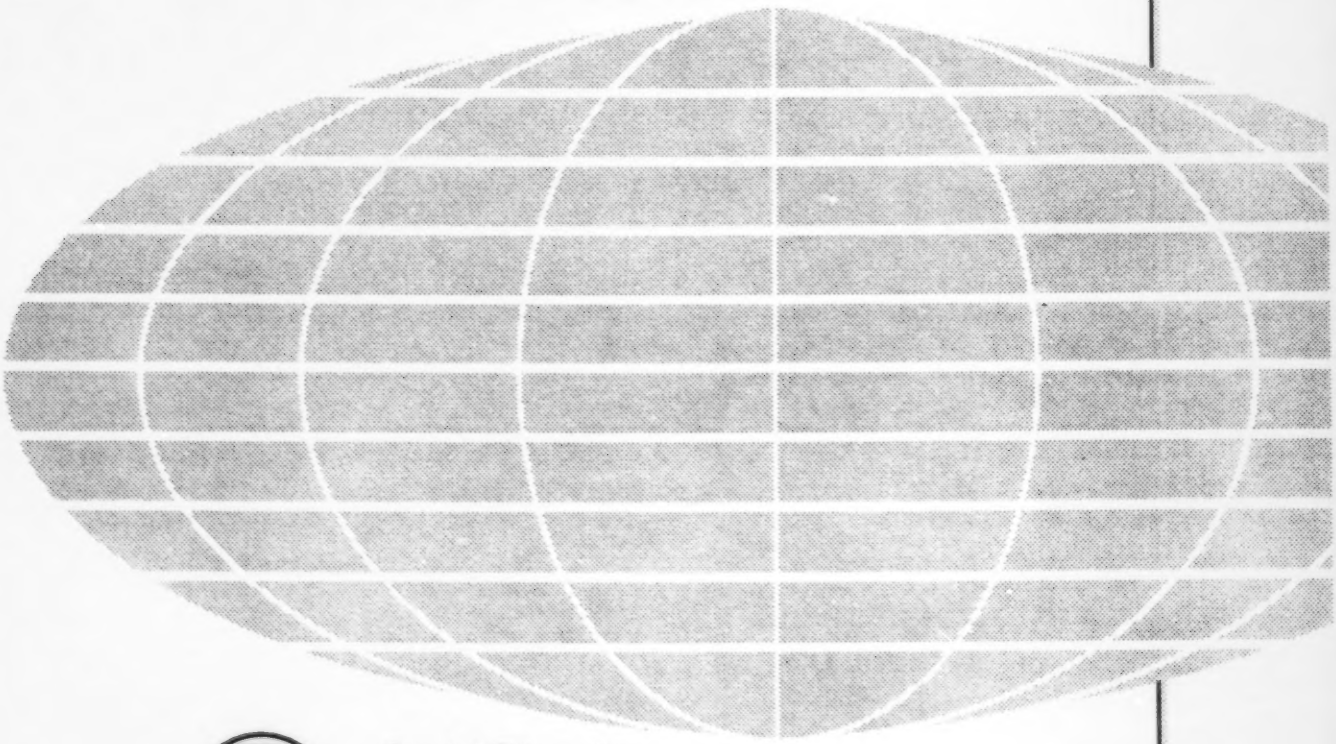
Maritime Geomatics Strategy

Final Report



Comité Géomatique
Maritime
Geomatics Board

in consultation with
The Maritime Geomatics Business
and Academic Communities

■ 14 January 1992

The **Maritime Geomatics Board** (MGB) is an organization under the Council of Maritime Premiers responsible for coordinating geomatics activities amongst the three Maritime provinces

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Contents

Executive Summary: ..... p. i

1. **Introduction:**
   a background and overview of geomatics activity in Maritime Canada. ..... p. 1

2. **The Vision:**
   the role of geomatics in Maritime economic development. ..... p. 5

3. **Mission:**
   the goals and objectives of the strategy. ..... p. 14

4. **Action Plan:**
   an implementation strategy. p.26

Appendices:

Appendix A: List of Participants A.1
Appendix B: The Atlantic Geomatics Alliance B.1

Geomatics Defined

Geomatics is the science, technology, and use of geographically-referenced information, including its acquisition, storage, analysis, display, and dissemination.

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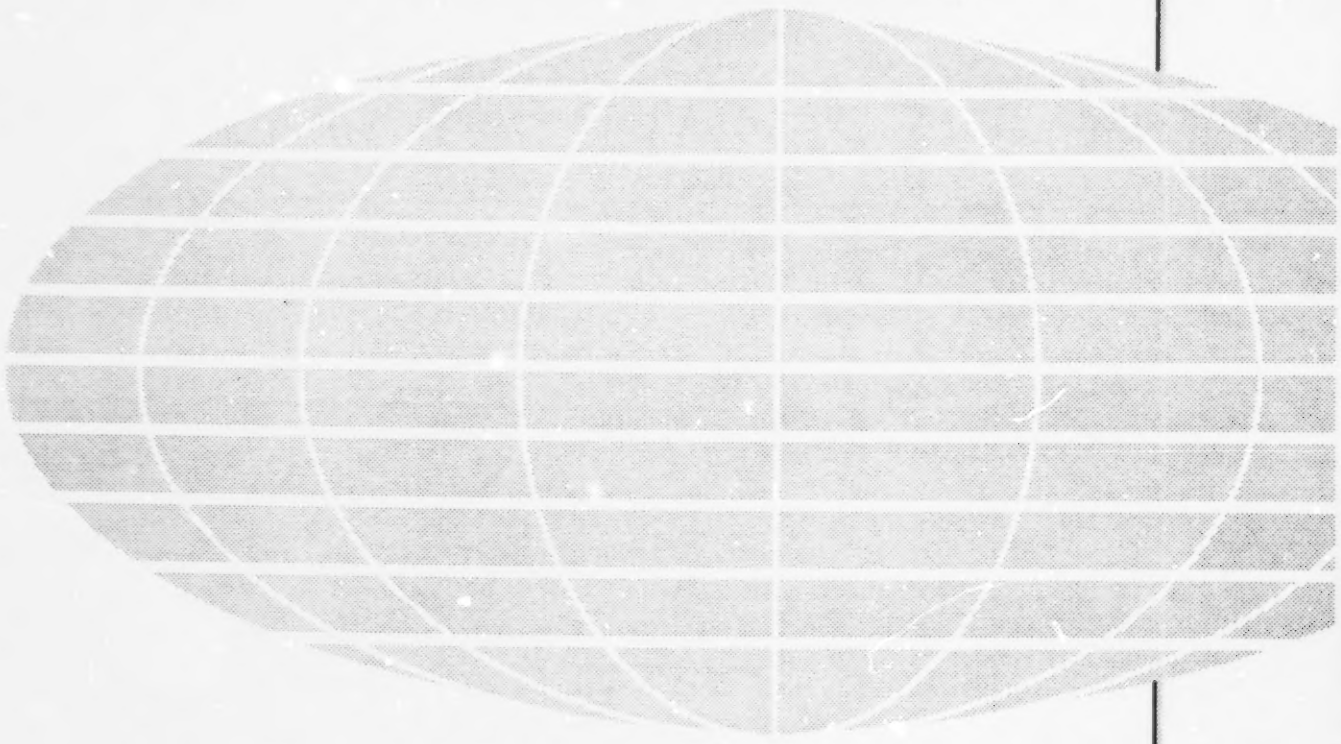
Executive Summary



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Executive Summary

Introduction:

This Strategy is about the development of:

– a high technology sector with revenues of $50 M. by 1996

– a Maritime Geomatics Infostructure

This Strategy is about Maritime Economic Development –

- the development of a Maritime based high technology sector generating $50 M. in annual revenues by 1996 with growth exceeding 20% annually; and

- the development of a Maritime geographic information infrastructure (infostructure).

The Maritime geomatics sector has a strong history of regional cooperation which must continue – particularly in our mission to pursue private sector geomatics development. The best way to attain the critical mass necessary to penetrate world markets is to build on the synergy of regional cooperation between our governments, the private sector and the academic community.

A regional approach is essential to attain critical mass

Equally important is the development of a Maritime Geomatics Infostructure. It is critical to our region and complementary to our private sector development objectives – they must be achieved in harmony.

Strategy Development: A Community Approach

The Maritime Geomatics Strategy has been developed in consultation with government organizations, business and the academic/research sectors. This process was important to ensure that the Strategy reflects the aspirations of our community because of:

- the diverse nature and interests of stakeholders within the industry;
- the need to build the constituency necessary to implement the strategy; and
- the synergy we must create by working in partnership.

Leaders from all sectors of the Maritime geomatics community were involved in the preparation of the Strategy

Strategic thrust: a two pronged approach

Geomatics is very much a strategic technology affecting Maritime economic development in two ways:

- **Information Infrastructure:**

The pace of economic development initiatives will increasingly depend on information and related technologies. Without it our firms and governments will lag behind in an increasingly competitive global market. Many investment decisions rely on timely and accurate land or marine related information, whether it be locating an industrial plant, exploring for natural resources, defining a market or building a highway.

Many investment decisions rely on timely and accurate land or marine related information

The use of geomatics in economic development pursuits will depend heavily on governments because of their mandate to collect and maintain land and marine related databases. Over $60 billion in real estate and $900 million in tax revenues is involved.

It's our vision for governments (federal-provincial-municipal) and the business sector to develop a Maritime geomatics infostructure – a network of databases with a focus on economic development. Such an initiative will require:

- the development of standards; and
- partnerships to build and maintain databases.

In addition, the recent emphasis on sustainable development can only be realized with an enhanced land and marine information system.

■ Geomatics Private Sector Development:

We have a significant opportunity to develop a geomatics private sector in Maritime Canada. World markets for geomatics are strong, estimated at $6 billion annually with growth rates exceeding 25%. Our region is well positioned to penetrate these markets.

We have over 50 Maritime firms involved in geomatics with world markets estimated at $6 billion.

In recent years a private sector has emerged with more than fifty Maritime based firms currently active in geomatics. Our firms have been successful in such markets as the Pacific Rim, Europe, the Middle East, South America, the Caribbean, Australia and the United States. These private sector initiatives have recently been recognized and endorsed by the Atlantic Canada Opportunities Agency (ACOA) through the signing of an

Over the next three years $20M will be invested in R&D through an Atlantic Geomatics Alliance supported by ACOA

Atlantic Geomatics Alliance which will result in an infusion of $20M. of ACOA and geomatics industry investment in R&D.

A Maritime geomatics private sector generating at least $50M annually by 1996 (currently $15M) with sustained growth in export markets is a realistic goal. To accomplish this will require a cooperative effort and support from government and the academic community. The support required is not in the form of government grants, but in contracting-out government services, the formation of public/private sector strategic alliances, privatization and reasonable government policies pertaining to data access and pricing.

We also need to focus on export markets. The regional market is too small to support the investment required to establish and maintain a leading edge in this high technology area. To penetrate international markets we must establish a critical mass within our local industry.

The development of a geomatics export business has significant industry spin-off potential for other sectors of the Maritime business community. Geomatics projects are usually at the front end of much larger infrastructure projects – particularly in the Third World. Being involved in these projects at the front end brings a competitive advantage to our business community when competing for the business that follows. Geomatics is generally only the "tip-of-the-iceberg". We should use it to gain entry into a broad range of export markets.

Geomatics gains entry into a broad range of export markets

Recommended Action Plan

This Action Plan has been developed to take advantage of the opportunities presented by the emerging geomatics technologies. Responsibility for implementing the strategy will rest not only with government but the business and academic community as well. An outline of the actions is presented:

- That the Maritime Geomatics Board develop a Geomatics Infostructure Implementation Plan, with standards, by July 1992

- That the LRIS Board issue a Request for Expressions of Interest to Privatize LRIS Amherst and Summerside by April 1992

- That the Geomatics Board explore federal-provincial-municipal partnerships for infostructure development and prepare a Discussion Paper by April 1992

- That the Champlain Institute prepare a Geomatics Contracting-out Discussion Paper by April 1992

- That the Geomatics Community support the Establishment of Private/Public Sector Alliances and Demonstration Projects in Land Records Management, Environmental /Integrated Resource Management Information Systems, and Coastal and Ocean Information Systems. Alliance agreements to be in place September 1992

- That the Geomatics Board enter into discussions with the Maritime Environment and Economic Development Ministers and the private sector concerning a Regional Sustainable Development Information System

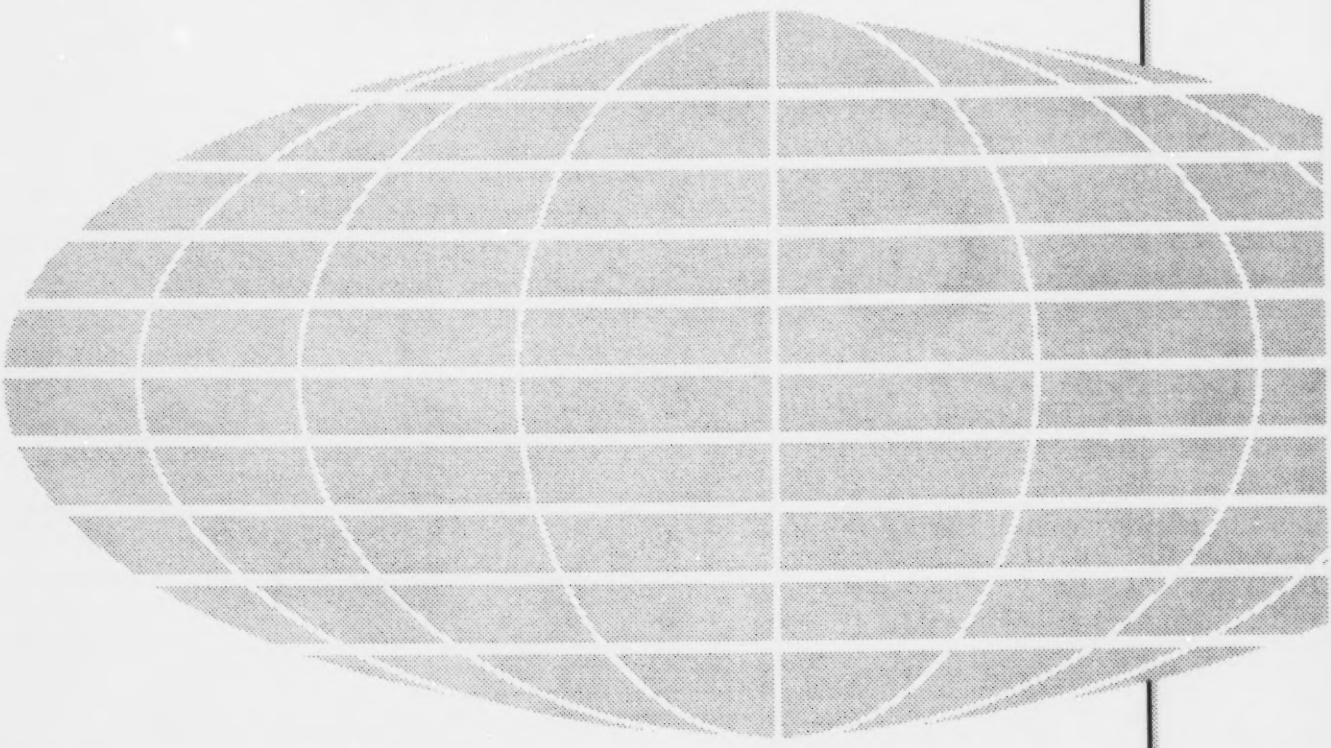
- That the Champlain Institute prepare an Export Development Plan in concert with the Atlantic Geomatics Alliance

- That University of New Brunswick and the Nova Scotia College of Geographic Sciences submit to the MPHEC a joint proposal for a Maritime Geomatics Educational and Training Network anchored by a Geomatics Continuing Education Institute serving both Local and Export Markets

- That the Champlain Institute focus its mission on Private Sector Development, restructure its Board of Directors to reflects its mission and prepare a Financial Plan aiming toward Financial Self-sufficiency

- That the Geomatics Board and Champlain Institute spearhead a Geomatics Awareness Program within the Maritimes

Final Report



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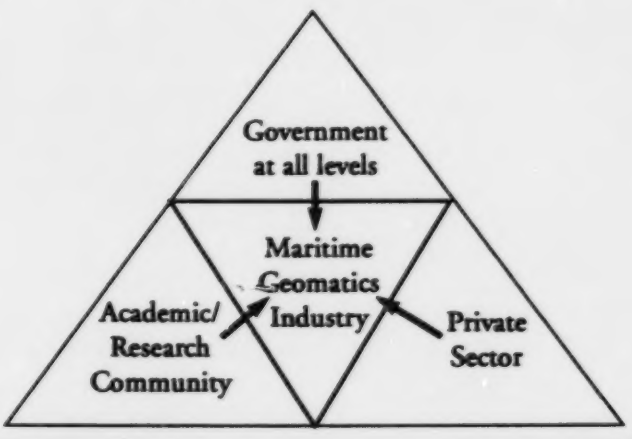
1. Introduction

1.1 Purpose of the Strategy

This Strategy is a response to the Council of Maritime Premiers (CMP) document Challenge and Opportunity. Its purpose is to establish a blueprint for the development of the Maritime Geomatics industry. It has been prepared by the Maritime Geomatics Board (MGB) in association with the business and academic communities.

THE MARITIMES GEOMATICS INDUSTRY:
A TRIAD OF INTERESTS

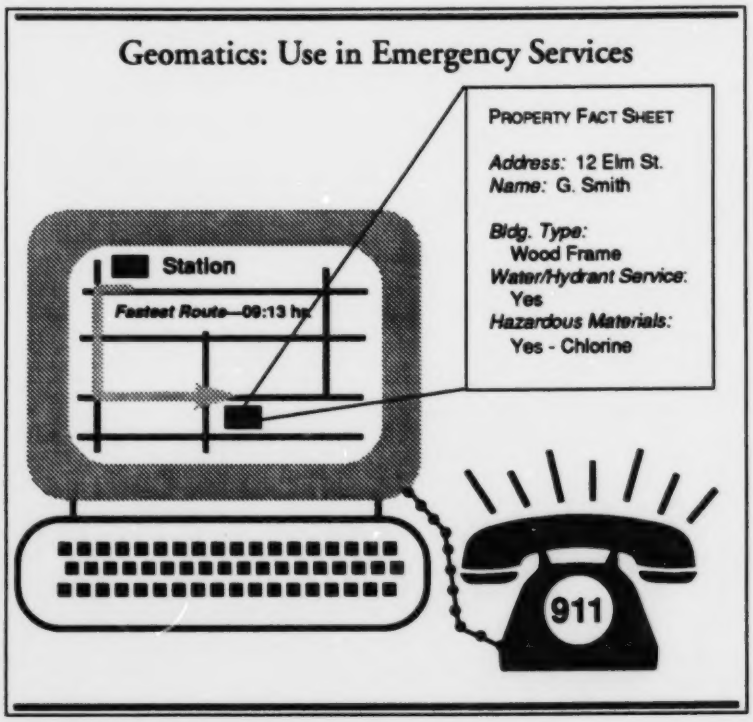


1.2 Geomatics: some examples

- to improve the delivery of social and emergency services: the 911 initiative is a good example of geomatics in action – fusing information & communications technologies to improve the delivery of vital services;

- to implement sustainable development policies: geomatics will be critical in both government and the private sector to balance economic development pursuits with environmental objectives – the basis of decisions will be information about our land, coastal and ocean environments.

"Geomatics assists virtually every aspect of community development"

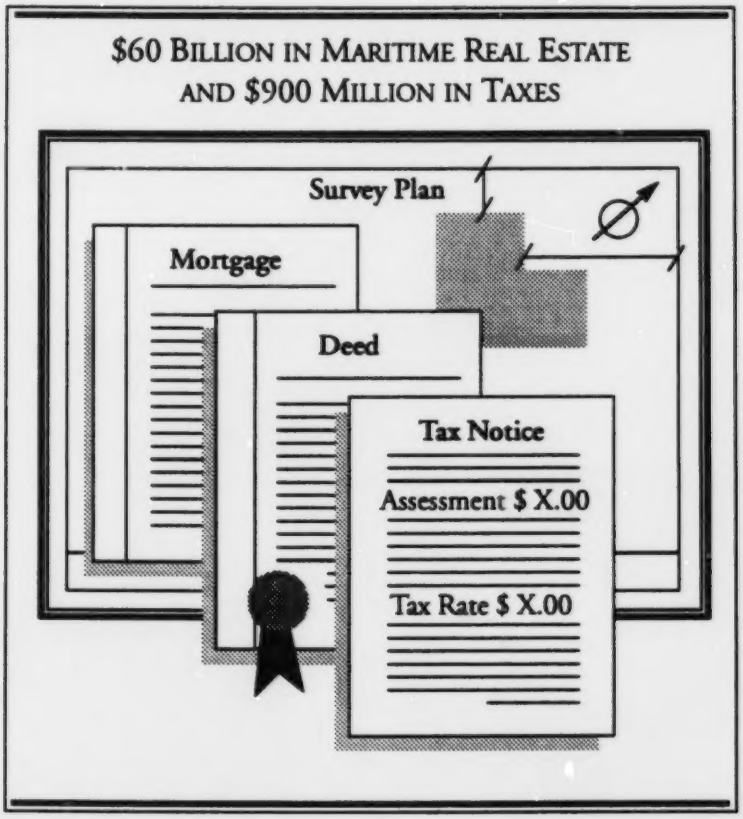


- to operate our political/government institutions we rely on geomatics for:

  – the definition of political, administrative and jurisdictional boundaries;

  – the administration of our land ownership & tenure system. Over $60 billion worth of private real estate (excluding government property) is involved. Many of our financial transactions are linked to this real estate for the purpose of loan collateral;

  – over $900 million of property tax revenue each year.



- to **attract and locate industry:** information about industrial lands (e.g. location, ownership, real estate costs, zoning, taxes, transportation access, utility services etc.) and data about labour markets is critical to decision makers – all of this falls under the geomatics umbrella;

- to **develop and maintain the region's physical infrastructure:** our transportation & communications network and utilities such as water, sewer and electrical systems are all dependent on land related information to plan, design, build and then maintain the infrastructure;

- to **manage our natural resources:** all resource sectors depend on geomatics to identify and manage commercially viable natural resources — in fact, the Maritime forestry industry was the first sector to embrace computer mapping as a means of maintaining competitiveness.

1.3 Geomatics: Its Relevance to Maritime Economic Development:

These few examples show the strategic importance of geomatics in attaining the Maritime Economic Vision articulated in Challenge and Opportunity. The relevance of geomatics to economic development is threefold:

The relevance of geomatics to economic development:

- *improves competitiveness*
- *strong export markets*
- *significant industry*

- It's a tool which can *improve our competitiveness*. Geomatics technologies allow better-informed decision making in such areas as:

  – investment analysis by the business and government sectors; and

  – improving the operational efficiency of firms and government organizations.

- It's a *high technology area with strong markets*. Maritime Canada's excellent reputation in the field presents an opportunity for us to:

  – play a profitable role in the emerging global information technology industry; and
  – enhance our international image as a centre of excellence in a high technology business.

- Geomatics has *significant business spin-off potential*, particularly in the developing world.

  – Geomatics allows our business sector to penetrate international markets beyond geomatics. The technology is usually at the front-end of large projects (e.g. major infrastructure projects). Early involvement gives geomatics and other Maritime firms a competitive advantage in these infrastructure projects.

2.1 Developing a Maritime Geomatics Infostructure

2.1.1 Electronic Highways –The Infrastructure of Tomorrow

These electronic highways will carry data traffic essential to our business and government leaders. It enhances the quality and speed of decisions which is key to attaining Maritime competitiveness.

The fusion of computer and communication technologies has led to the development of information highways – the infrastructure of tomorrow

Our region is well underway in developing a Maritime Electronic Highway. Our telecommunications sector has invested in a fibre-optics network complemented by a number of other private initiatives, some with support from government (e.g. Nova Scotia Technology Network which enjoyed support from ACOA and the Province of Nova Scotia). Although these initiatives are outside the scope of this strategy, they are critical to attain the full impact information technologies such as geomatics can have on Maritime economic development.

2.1.2 The Vision: A Maritime Geomatics Infostructure

Our vision is of a Maritime Geomatics Infostructure which takes full advantage of this electronic highway. It would consist of a network of databases to support applications pertaining to regional economic development. It would connect our three provinces – its governments (at all levels) and the business sector. Equally important would be its link into networks being established elsewhere in Canada and abroad.

The infostructure is analogous to a "transportation system" as opposed to a "highway system " and therefore includes the full range of components necessary to travel the highway from point A to B for various purposes or "applications". Examples could include:

- a firm in Sydney interested in expanding into New Brunswick

could travel the electronic highway to Saint John, N.B. in a matter of seconds to "pick up" data about the availability of industrial lands (location through electronic maps, ownership, prices, taxes etc.) and apply its own selection criteria to evaluate the information;

Maritime Geomatics Infostructure: a network of data bases to support applications pertaining to regional economic development – linking our governments and the business community

- a consultant in Toronto working on behalf of a U.S. firm could have access to a Maritime industrial development data base in order to do an investment analysis for his client. If this database is linked to an environmental database, it would reduce potential conflict at the front-end of projects and accelerate the approval process and investment in the region;

- a provincial economic development officer could link into the infostructure from a trade show in Vancouver while talking to a prospective investor;

- a forestry company in Edmundston preparing a management plan could travel the electronic highway to Moncton, Fredericton and Halifax to obtain data pertaining to wildlife habitat from federal and provincial environment and natural resource departments;

- a transportation company could link into the infostructure to generate more efficient delivery routes for its clients.

2.1.3 Development of a Maritime Geomatics Infostructure

The most notable components of a geomatics infostructure are:

- **databases** – required to fuel the applications or uses of the infostructure; and

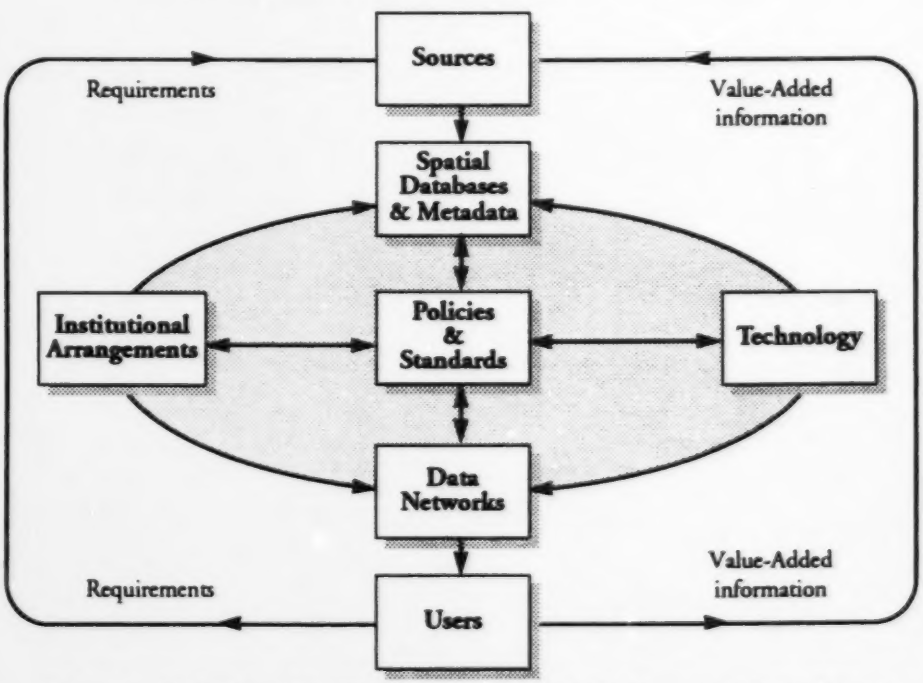
- **communications networks** – the electronic highways which will carry the data traffic.

Databases remain critical but greater emphasis must be placed on applications and the integration of communications

The availability of databases and communications networks will lead to the use of geomatics technologies and such advancements as expert systems.

Our provinces have been pursuing the development of a Maritime Geomatics Infostructure for some time, primarily through the LRIS program which focussed on building databases. Although databases remain critical, we suggest that greater emphasis be placed on "applications" and the integration of communications technologies. The delivery of databases can be achieved through provincial programs and joint initiatives with other levels of government and the private sector.

INFOSTRUCTURE COMPONENTS: A SYSTEMS PERSPECTIVE



Source: John McLaughlin and Sue Nichols (1991): "Toward the Development of a National Spatial Data Infrastructure", University of New Brunswick Dept. of Survey Engineering

2.2 Developing World Excellence in the Information Technology Sector

We can excel in the information technology industry on a global basis

Information industries are playing an increasingly important role in economic development. The U.S. estimates that this sector currently accounts for about 10% of its GNP ($500 billion) – with projections that it will outgrow most other sectors of the economy during the next decade. It's clearly an industry of ***strategic importance*** to nations wanting to lead world economic development. Its strategic importance is reflected by the competitive advantage it gives all sectors of an economy using information technology to advance its market position.

If we wish to play a role in the information technology industry – and we must – Maritime Canada has to:

- **focus attention** on technology market niches where we have an advantage;
- **create a business climate** which entices firms to invest and develop products and services for export markets;
- pursue opportunities on a **regional basis** to build the critical mass necessary within the private sector to penetrate export markets.

To penetrate export markets we must pursue industry development on a regional basis to build the critical mass necessary within the private sector

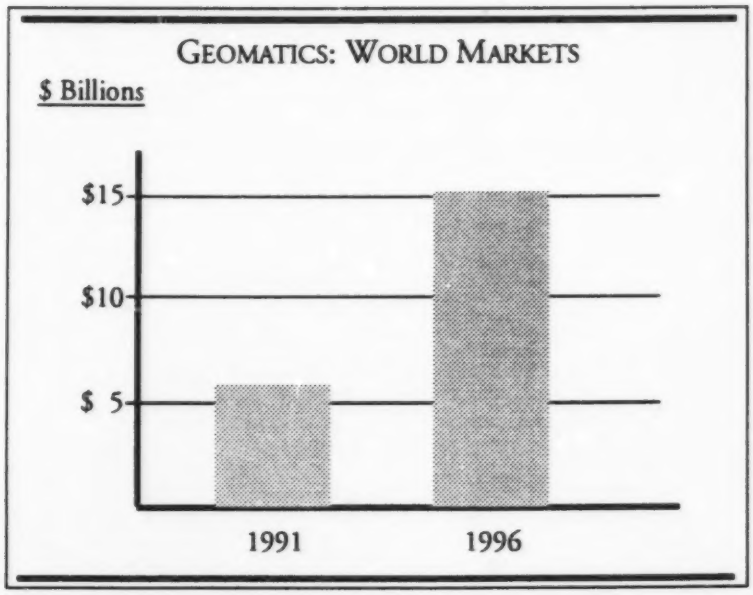
2.2.1 Geomatics: An Information Technology Industry Niche for Maritime Canada

Why is geomatics a high technology area with potential for Maritime Canada?

Geomatics – Why Maritime Canada?

- *international recognition as a leader*
- *global contacts*
- *Maritime firms working around the world*
- *strong base of expertise to build on*

- It's a young and growing industry with significant world markets, estimated at $6 billion a year and growing at over 25% annually;
- Maritime Canada is known internationally for leadership in geomatics with a network of global contacts;
- We have more than fifty companies and entrepreneurs committed to develop and invest in a geomatics industry with a focus on export markets;
- We already have geomatics companies exporting products and services to such markets as the Pacific Rim, Europe, the Middle East, South America, the Caribbean, Australia and the United States;



- We are well equipped on the human resource development side – a key ingredient in the success of developing a knowledge based industry. This has been our biggest geomatics export, we must retain and develop more of our people for the benefit of Maritime Canada.

With these advantages, we foresee a Maritime high technology industry built around geomatics, creating wealth within the region with an emphasis on export market development. The Maritime geomatics industry is committed to develop this industry on a regional basis and broaden its scope to encompass Atlantic Canada. This commitment is displayed by:

- The *Atlantic Geomatics Alliance* between the Atlantic Canada Opportunities Agency (ACOA) and the geomatics industry which will result in a $20 million investment in R&D over the next three years; and

An Atlantic Geomatics Alliance will result in $20 Million of public and private investment in geomatics R&D over the next 3 years

- The formation of the *Champlain Institute* in 1988, a nonprofit organization with a mission to champion private sector development in the Maritime geomatics sector.

2.2.2 Public – Private Sector Synergy a Critical Ingredient:

Success in developing a geomatics private sector will largely depend on synergy. Our firms have a relatively small market to build. To succeed, the private sector does not need grants. Instead, there is a need for the public sector to accelerate investment in geomatics and create a climate which is "friendly" to private sector development through:

- Strategic contracting of services rather than performing work in-house;

- The privatization of certain facilities to build the critical mass necessary within the private sector to pursue export markets;

- The formation of strategic alliances which will transfer knowledge and expertise into the private sector; and
- The adoption of progressive geomatics data access and pricing policies which encourage rather than inhibit the use of public information.

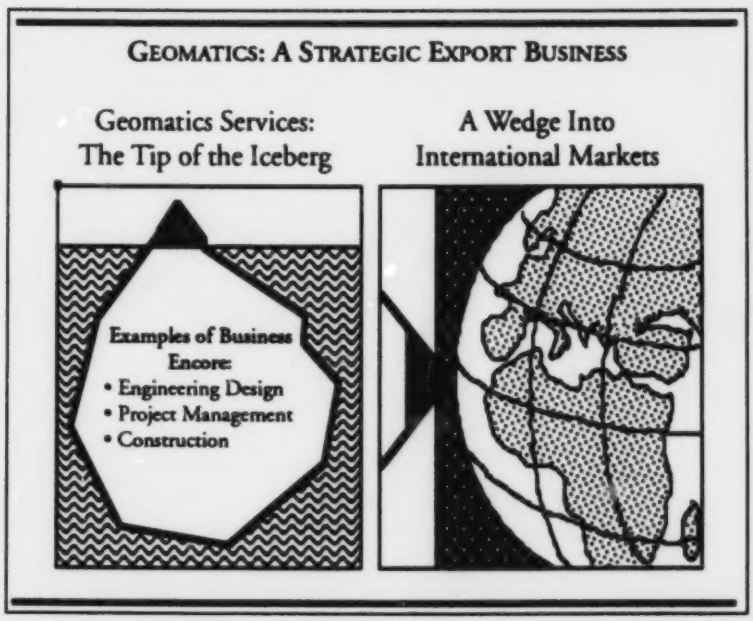
Areas of Government Assistance: Private Sector Development

Contracting-Out	Public/Private Sector Alliances in:	Privatization	Access to Data
• geomatics services, particularly sunset activities	• land records management • coastal and ocean information systems • environmental/ integrated resource management information systems	LRIS Amherst and Summerside	Reasonable public policy respecting access and pricing of geomatics data to encourage use of geomatics in private sector

2.2.3 The Geomatics Business Spin-off Potential

A number of Western nations use geomatics projects to attain a strategic advantage in the developing world and gain access to lucrative infrastructure projects. This is done through the provision of geomatics services often required before the pre-design phase of projects (e.g. surveying & mapping and resource/environmental inventories). Such geomatics projects can provide significant market intelligence to firms bidding on the encore business of designing and building the infrastructure projects.

We can use geomatics to attain a strategic advantage in international markets, such as lucrative infrastructure projects in the developing world.
Maritime Canada needs to look at this holistic economic development approach and articulate appropriate strategies (market niches – sectoral and geographic) where it can be applied. The pay-off potential to the region can be very significant.



3. The Mission

3.1 Goals

The Strategy has two goals:

- To complete the geomatics Infostructure and advance applications in support of Maritime economic development.
- To develop an internationally competitive geomatics private sector based in the Maritimes.

3.2 Accelerating the Completion of the Maritime Geomatics Infostructure

The objectives for the development of a Maritimes Geomatics Infostructure are:

3.2.1 To Establish an Implementation Plan and Standards by 1992

We need to establish a Maritime Geomatics Infostructure Plan to address implementation issues, with a focus on standards. The key will be how best to coordinate federal, provincial and municipal activity and channel it towards the vision of a regional infostructure. The role of the private sector must be examined, particularly in relation to the goal of building an export ready geomatics business in Maritime Canada.

Focus on standards

3.2.2 To Complete the Foundation Databases by 1997 Through a Blend of Municipal-Provincial-Federal Geomatics Programs and Private Sector Initiatives

The foundation of the infostructure will essentially consist of:

- database and communications protocol and standards;
- an efficient communication network(s) to carry data within the region primarily based on the existing and expanding telecommunications infrastructure; and
- public geo-based data sets (digital mapping and property records data) on which to build and promote applications such as environmental/integrated resource management.

The foundation of the infostructure should consist of:

- *database and communications standards*
- *communication network(s)*
- *public geo-based data sets*

Significant investment has already been made to develop this foundation but we need to accelerate this activity and blend initiatives at all levels of government so as to share in the investment and avoid duplication of effort.

The Maritime provincial organizations responsible for geomatics will need to accept a lead in this because of their pivotal position to deal and negotiate with both the federal and municipal levels of government. Particular attention should be paid to the role our municipalities can play in this endeavor, especially in the task of maintaining the currency of databases.

3.2.3 To Place an Immediate Priority on Applications in the Area of Environmental and Integrated Resource Management

One important application of a geomatics infostructure is to assist in the implementation of sustainable development policies. To date, most environmental initiatives have been reactionary and regulatory in nature. The infostructure initiative allows us to use sustainable development as a pro-active economic development tool through the design and implementation of a Maritime Sustainable Development (macro level) Database supported by applications (software development and expert systems). The design of the database has to be application(s) driven, initially consisting of a skeleton database to which organizations could add their own data and which would mature over time as a comprehensive network of databases. It would be made available to:

The infostructure initiative allows us to use sustainable development as a pro-active development tool – accomodating rather than restricting industrial development

- the private sector for industrial site selection – reducing environmental conflicts at the early stages of project development and shortening approval times;
- public sector organizations at all levels for project and program planning, implementation and monitoring.

This has to be a multi-participant effort involving all levels of government and the private sector. This would result in the standardization of environmental assessment parameters involving industrial site selection.

3.2.4 To Invite the Private Sector to Partner in the Development of the Infostructure and Use the Strategy as a Catalyst for Geomatics Private Sector Development

The investment required to build the infostructure should be made in concert with industry development objectives. Contracting for the construction of databases and applications development can assist Maritime firms to improve their competitiveness. The actual operation and maintenance of the infostructure may, in part or in whole, be contracted to the private sector. All options that can involve the private sector should therefore be investigated, including a private-public sector alliance to design, build and operate systems.

Contracting-out the construction of databases and the development of applications will assist Maritime firms in improving their competitiveness

3.2.5 To Develop Geomatics Database Access and Pricing Policies which Promote the Use of Geomatics Information and Applications Development

The business community is concerned that public sector trends towards cost recovery will retard industry development by making it too expensive to use public data

Geomatics databases provide the fuel which drive the technology. Development of applications and value added products for export development will depend on research and development efforts using public data in Maritime Canada. The business community is concerned that the public sector trend towards cost recovery will reflect on the pricing of geomatics data. This could make it prohibitive to use the data in industry development initiatives. We must address this concern to ensure that reasonable access to data is maintained. Although we can develop a regional policy framework, it should be

noted that ultimate responsibility and decisions concerning this matter rest with the custodians of the databases, whether they be provincial, federal or municipal organizations.

3.2.6 To Use the Strategy as a Model for the Development of a National Infostructure

The seeds for a national infostructure have been planted and encouraged by Dr. John McLaughlin, an internationally recognized expert in geomatics and president of the Champlain Institute. His work has carried the Maritime LRIS concept into the next generation of geomatics technology. We must not resist this evolution. We should be leaders advancing our international position in this field. We must look beyond our borders; the Maritime Premiers have an opportunity to emulate an activity as important as driving the first spike for our national railway – namely to build on our initiatives here to develop a national information highway dealing with geo-based data. Federal government support and funding will be essential to pursue this endeavor.

3.2.7 To Create a Strong Regional Focal Point to Guide the Development of the Infostructure

A strong regional institutional focus is required to champion and coordinate the development of a Maritime geo-based infostructure. Strong need not imply large. The Maritime Geomatics Board (MGB) should have the mandate to assist our geomatics industry and the other levels of government to develop the infostructure. The MGB should remain small in staff, performing the role of catalyst/coordinator. (Also note sub-section 3.3.5, which outlines the relationship of the MGB to the Champlain Institute).

A strong regional institutional focus is required to champion and coordinate the development of a Maritime Geomatics Infostructure

3.3 Private Sector Development

The Objectives for Maritime Geomatics Industry Development are:

3.3.1 To Establish a Maritime Geomatics Industry with Annual Gross Revenues of at Least $50M by 1996

To achieve critical mass within our geomatics business sector Maritime provincial investment and contracting-out must be expanded

The Maritime Geomatics private sector currently grosses approximately $15 M., mostly from revenues generated within Atlantic Canada. To achieve the critical mass necessary for export development an objective of $50M (in 1991 dollars) has been set. To achieve this the Maritime provincial investment in geomatics and contracting to the private sector must be expanded. Without this business climate, the private sector will not have the regional market base necessary to develop its export potential.

3.3.2 To Focus Private Sector Development on Export Markets and in Geomatics Application Areas in which the Maritime Region has an Advantage

To achieve lasting private sector development our focus must be on export markets – the regional market is just too small to sustain a growing and competitive industry.

To be successful in the export market our firms will need to focus on *application growth areas* in which we have a market advantage – three of these areas, as has been pointed out in a number of studies, are:

- **ocean and coastal information systems**, because of our geography and the ocean related research, academic, government and business infrastructure in Atlantic Canada;

- **environmental and integrated resource management information systems**, because of our resource based economy and the leading edge environmental information systems R&D taking place within the region; and

- **land records management systems**, because of the significant efforts undertaken in this area by the CMP, provincial agencies and municipalities in our region.

Competing on the international scene, particularly in developing countries, requires a Team Canada approach because we need Federal support to bid against national teams from such countries as Japan, Sweden, Holland, Germany and France

The application focus will be critical if we wish to pursue export markets, particularly in the developing world because we can not afford to take a "shotgun" approach. We must develop world excellence in selected application areas so that we can market our products and services through a Team Canada approach led by companies from Atlantic Canada.

The Team Canada approach is recommended because of the competitive nature of markets in developing countries – most of the European nations have adopted a national team approach complemented by strong national government support. The only way to counter this approach is with similar tactics – we can't afford to have more than one Canadian firm or "team" compete in situations like this; it's too expensive and neutralizes the Canadian government from assisting our firms. To become a central player in the international market the Maritime industry must focus its efforts in areas where it's strong – without such a focus our regional firms will remain "utility" players on any Team Canada which is formed to pursue export opportunities.

3.3.3 To Create a Business Climate which:

- **Fosters the Growth of Maritime Based Export Consortia and/or Large Firms with General Contracting Capabilities and the Financial Resources to Pursue Large Projects in the three Targeted Application Areas**

The Maritime geomatics industry consists mostly of small firms (fewer than five employees); we must build on these as our industry evolves from being based primarily on local markets to focusing on export development. To use the synergy of small firms to develop the industry structure and critical mass suitable for export market development requires consortia within the

We can't afford to take a "shotgun approach" – our region must focus on developing world excellence in targetted application areas so that we can market our products and services through a Team Canada approach led by companies from Maritime Canada

three targeted application areas – preferably anchored by large firms – with the experience, capabilities and financial resources to pursue large contracts.

The geomatics market, particularly within the Third World, increasingly needs geomatics general contractors – firms with project management skills and financial resources to deliver turn-key solutions. Packaging, integrated technologies (GIS, communications technology etc.) and services (system design, applications development, database building, system migration, training etc.) are the order of the day. A natural evolution of this market development trend, as has happened in the traditional data processing industry, is towards "out-sourcing" of services to operate systems on behalf of clients.

■ **Develops Firms (both small and large) with Innovative Niche Geomatics Technologies and/or Services with Strong Export Market Potential**

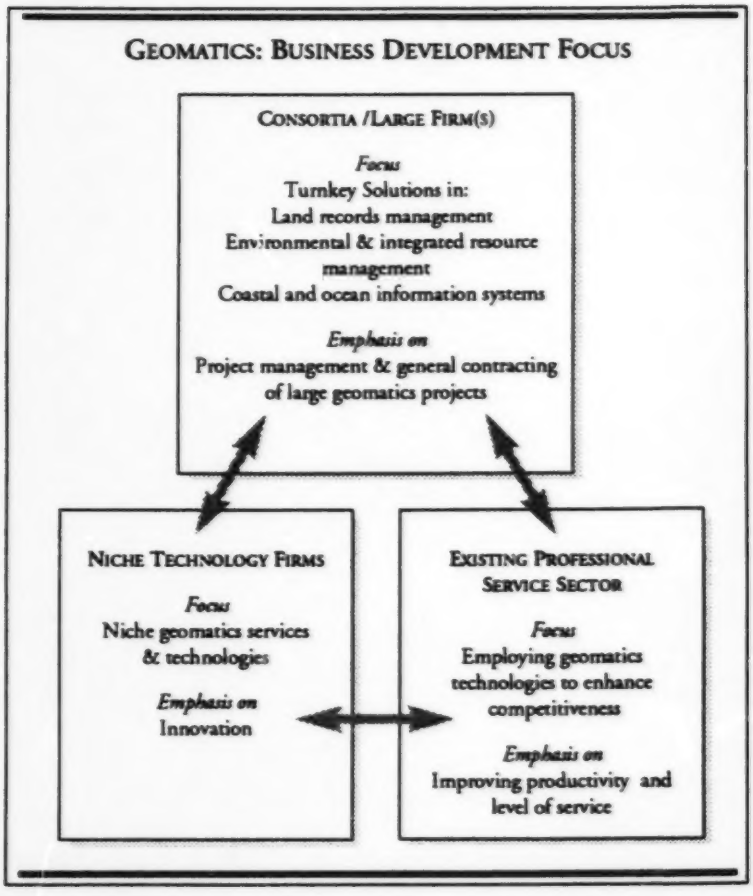
It's critical we use the synergy of our small firms to develop an industry structure and critical mass suitable for export market development – this requires consortia of industry players, including government agencies, anchored by large firms

We must encourage the development of firms which fill specific application niches. As noted , there is a broad spectrum of applications best pursued by small to medium sized firms. These application niches could be in the development of a technology and/or the provision of services. An example is pavement management software and services for small to medium sized municipalities. One way to encourage niche firms is for Maritime government organizations who need the applications to participate actively with the private sector to develop them. The university community has a strong role to play through the transfer of research activity into the private sector.

Innovation and marketing will determine the success of these firms while project management and system integration capabilities coupled with international marketing will determine the success of the consortia.

■ **Encourages our Professional Service Firms (engineering, planning, environmental, management consulting firms etc.) to Embrace the Geomatics Technology**

To enhance the capabilities and competitiveness of professional service firms both at home and abroad (engineering, planning, environmental consulting firms) it is prudent that they embrace and invest in geomatics technologies to improve delivery of services. The regional market, particularly governments, can play a role by bundling geomatics into projects, thereby enabling firms to invest and gain experience in their home market.



3.3.4 To Place Immediate Emphasis on Strengthening the Human Resource Development Component of the Maritimes Geomatics Industry by:

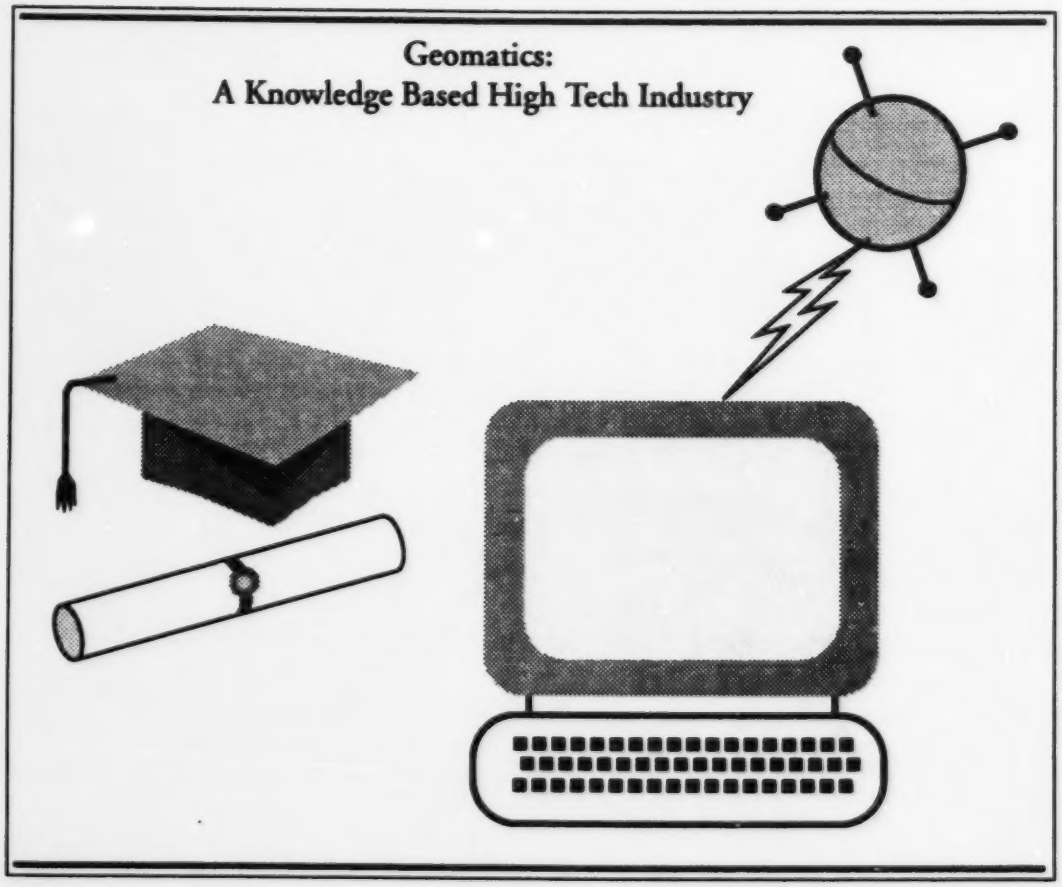
■ **Establishing a Geomatics Continuing Education Institute to:**

i. Improve and maintain the skills of people working within the Maritime geomatics community; and

ii. Pursue export opportunities in this field.

■ **Ensuring that our Core Geomatics Educational Institutions (UNB and COGS) Maintain Leading Edge Technologies for Training and R&D**

■ **Expanding Geomatics Training into all Post Secondary Education Institutions where the Technology is Applicable**



The international market for geomatics training is estimated at $100 M. annually

We can not over stress the importance of human resource development in geomatics. It's a knowledge based industry built on people. Immediate investment is required to establish a continuing geomatics training program in Maritime Canada. Market research has indicated that there is also a strong international market for geomatics training estimated at $100 M. annually. A business case can be made for a Geomatics Continuing Education Institute based at one of our two core geomatics academic institutions (COGS and UNB) to provide training as an export service. Such an initiative has some important spin-offs for our industry:

— it enables us to attract and retain top professionals, expand the suite of training programs and maintain state-of-the- art geomatics equipment at our two training institutions which a Maritime market could otherwise not support;

— training on the international scene provides tremendous market intelligence to pursue export business opportunities;

Training on the international scene provides tremendous market intelligence to pursue export business opportunities

— it raises the international profile of the region in the geomatics community; and

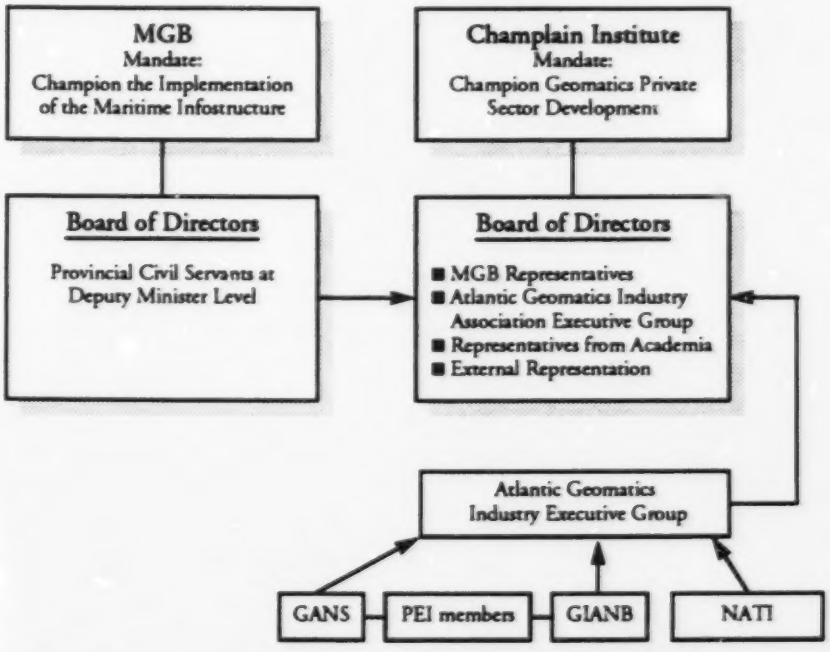
— it provides a service essential for the development of general contracting consortia or firms in Maritime Canada.

3.3.5 To Maintain and Strengthen the Champlain Institute as the Focal Point for Geomatics Industry Development

The general consensus within the Maritime geomatics industry is that the Champlain Institute – a non-profit regional partnership of government, academia and the private sector – has been an excellent vehicle to promote industry development. The Institute should continue to be the champion for private sector development operating in parallel with the regional public sector activities of the MGB. A proposed structure is shown in the following diagram.

Although the Institute has enjoyed broad support from Maritime firms it has lacked consistent financial support from all three provincial governments. This must be remedied through the MGB with a commitment to fund the Champlain Institute for an adequate incubation period, while the Institute develops a financial plan for self-sufficiency.

MGB and Champlain Institute: Relationship and Mandates



GANS: Geomatics Association of Nova Scotia
GIANB: Geomatics Industry Association of New Brunswick
NATI: Newfoundland Association of Technical Industries

In establishing its Board of Directors, the Institute must ensure that it adequately represents geomatics industry interests (private and public sectors and academia) in Atlantic Canada. Because of the Institute's private sector focus we recommend that the chair should be a representative from the private sector.

4. The Action Plan

4.1 Ten Point Action Plan:

A ten point action plan has been prepared to implement the Strategy – (details are provided in sub-section 4.2):

- Develop an Implementation Plan, with Standards, for a Maritime Geomatics Infostructure.
- Explore federal-provincial-municipal partnerships for infostructure development
- Prepare a Geomatics Contracting-out Discussion Paper
- Privatize LRIS Amherst and Summerside
- Establish Private/Public Sector Alliances and Demonstration Projects in:
  - Land Records Management;
  - Environmental/Integrated Resource Management Information Systems; and
  - Coastal and Ocean Information Systems
- Place Immediate Emphasis on Applications in the Area of Environmental and Integrated Resource Management (sustainable development)
- Prepare and Implement a Maritime Geomatics Export Development Plan
- Prepare through the University of New Brunswick and the Nova Scotia College of Geographic Sciences prepare a joint proposal for a Maritime Geomatics Educational and Training Network anchored by a Geomatics Continuing Education Institute serving both Local and Export Markets.
- Strengthen the Champlain Institute with a Focus on Private Sector Geomatics Industry Development in Maritime Canada
- Undertake a Geomatics Awareness Program within the Maritimes

4.2 Action Program

4.2.1 Infostructure Implementation Plan and Standards:

Action Statement:
That the CMP direct the Maritime Geomatics Board to prepare, in consultation with all levels of government and the private sector an implementation plan with a focus on Standards

Organization Responsible for Action:
The Maritime Geomatics Board

Time Frame:
To be completed by mid-1992

4.2.2 Federal-Maritime-Municipal Partnerships

Action Statement:
That the Maritime Geomatics Board develop a discussion paper which looks at the full suite of potential partnerships between the Maritimes and the Federal and Municipal governments to accelerate the development of the infostructure. It would include an assessment of how existing or proposed federal-provincial agreements could be used in this area.

Organization Responsible for Action:
The Maritime Geomatics Board in association with the provincial land information agencies.

Time Frame:
To be completed by April 1992.

Priority Action Item

for which we recommend immediate action

4.2.3 Contracting-out Policy and Guidelines

Action Statement:
That the private sector prepare a geomatics contracting-out position paper which outlines benefits and a recommended approach. Position paper to be submitted for consideration to the CMP to assist them in implementing the contracting-out policies adopted in each of the Provinces.

Organization Responsible for Action:
The Champlain Institute will coordinate the preparation of the private sector position paper in consultation with the lead agencies in each Province.

Time Frame:
To be completed before April 1992.

4.2.4 Privatize LRIS

Action Statement:
That the CMP issue a Request for Expressions of Interest by the Private Sector to purchase LRIS Amherst and Summerside to use the LRIS facilities, resources and the regional market as a foundation on which to build and create:

- critical mass within the geomatics industry for export development;
- potential expansion of the functions in each facility by the private sector;
- employment stability in the two communities.

Organization Responsible for Action:
LRIS Board of Directors

Time Frame:
Request for Expressions of Interest to be issued before April 1992.

Priority Action Item

for which we recommend immediate action

4.2.5 Private/Public Sector Alliances:

Action Statement:
To establish major Maritime based private/public sector alliances in land records management, environmental/integrated resource management information systems and coastal/ocean information systems. This would develop general contracting capabilities, technical skills and critical mass within the private sector. A key feature of these alliances would be to develop demonstration projects, which are important centrepieces in export market development.

A primary catalyst for forming these alliances is the Atlantic Geomatics Alliance.

Organization Responsible for Action:
Private Sector firms with support from government partners and the academic community

Time Frame:
Alliances to be established before September 1992.

Priority Action Item

for which we recommend immediate action

4.2.6 Maritime Sustainable Development Information System

Action Statement:
Request that Geomatics Board enter into discussions with the Maritime Environment and Economic Development Ministers and the private sector to begin developing parameters for the sustainable development information system to be integrated and networked into the Maritime Geomatics Infostructure. The system would support geomatics applications in the area of environmental and integrated resource management. Implementation of the system could be financed in part by Federal/Provincial Sustainable Development Agreements.

Organization(s) Responsible for Action:
Maritime Geomatics Board and the Maritime Environment and Economic Development Ministers

Time Frame:
Preparation of a sustainable development information system framework including its scope and implementation plan to be completed by September 1992.

4.2.7 Market Development Plan

Action Statement:
That the Maritime industry develop a market development plan which promotes the region as a centre of excellence in geomatics and assists firms in gaining access to export contracts.

The Plan should stress marketing the Maritimes within the context of a Team Canada approach, particularly in Third World markets. To ensure that our firms are central rather than "utility" players on a Team Canada, we must develop world excellence within niche areas.

Organization(s) Responsible for Action:
The Champlain Institute in conjunction with the private sector

Time Frame:
Market Development Plan to be completed in conjunction with the Atlantic Geomatics Alliance to ensure that it dovetails with the initiatives undertaken under this program. Timing to prepare the market development plan should be driven by the Alliance initiatives.

4.2.8 Maritime Geomatics Training and Educational Network

Action Statement:
Establish a Maritime Geomatics Training and Educational Network with:

- COGS and UNB designated as core geomatics educational centres;

- Other Universities focussing on specific application niches to complement their programs (e.g. civil engineering, environmental planning).

Organization Responsible for Action:
COGS and UNB to spearhead this initiative with the MPHEC

Time Frame:
To be completed by September 1992.

4.2.9 Geomatics Continuing Education Institute

Action Statement:
Establish a Continuing Education Institute at one of our core geomatics educational institutions to develop programs for both the regional and export markets. Private sector involvement in delivering the Institute's programs would be encouraged.

Organization Responsible for Action:
UNB and COGS

Time Frame:
Select a structure for the Institute and prepare a business plan before September 1992

4.2.10 Champlain Institute Financial Plan and Restructuring of Board of Directors

Action Statement:

- Preparation of a financial plan for the Institute to move the organization towards financial self-sufficiency; and

- Review of the Institute's Board of Directors to ensure adequate representation of Atlantic Geomatics Community interests with its chairman representing the private sector

Organization(s) Responsible for Action:
Champlain Institute

Time Frame:
To be completed before April 1992.

4.2.11 Maritime Geomatics Awareness Program

Action Statement:
Develop a Maritime Geomatics Awareness Program directed at:

- political and business leaders within the region;

- high school students, to encourage a career in geomatics; and

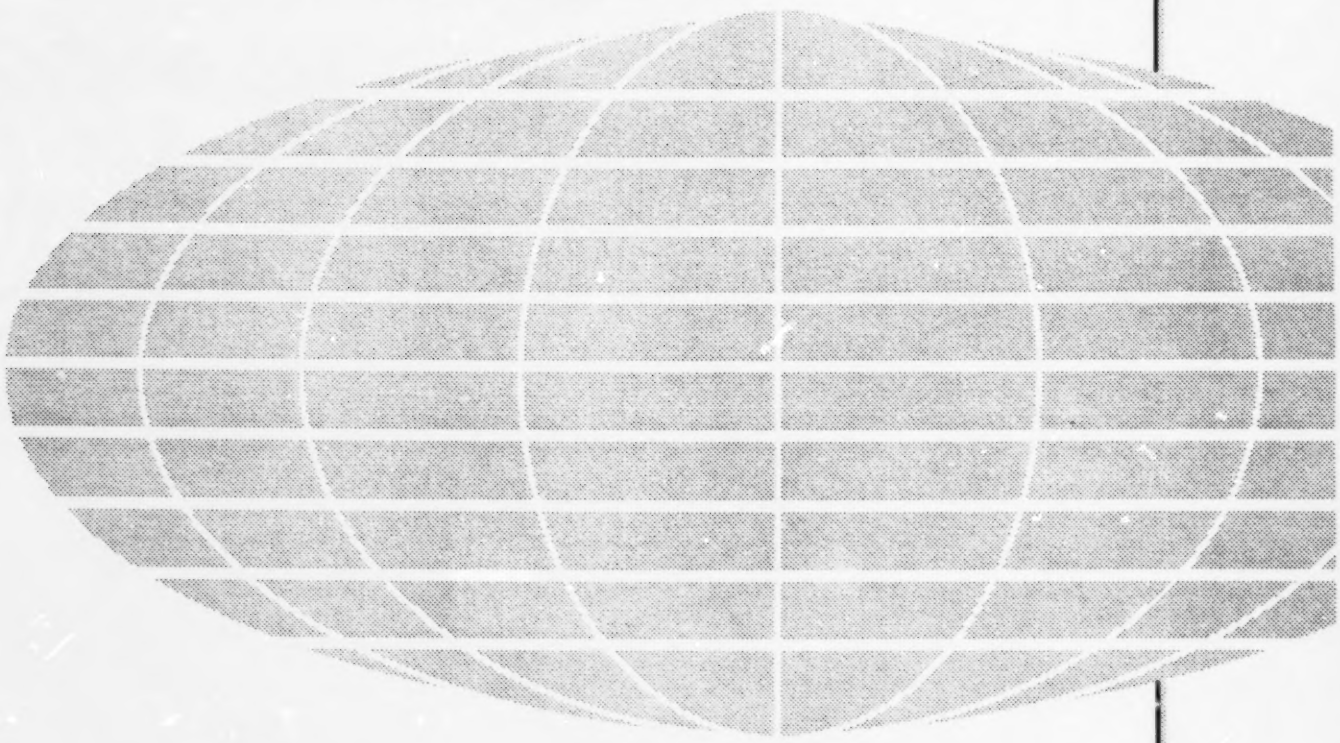
- the Press.

Organization Responsible for Action:
MGB and Champlain Institute

Time Frame:

Program framework to be completed before January 1992. This will be an ongoing activity.

Appendices



Geomatics Board

Comité Géomatique

Appendices

Appendix A: List of Participants

David Baker
President
Memex Studio Systems

Steve Battah
Federal/Provincial Agreement Planner
NB Economic Development & Tourism

Ginger Breedon
Deputy Minister
PEI Dept of Industry

Richard W. Burgess
Director Planning Agreements
NB Economic Development & Tourism

John Chesley
Senior Development Officer: Geomatics
Industry, Science & Technology Canada

Douglas Coles
President
Coles Associates Ltd

Carol Conrad
Deputy Minister
NS Policy Board

Garry Duperreault
Manager-Planning
NBTel

Bryan Ferguson
Vice-President
Applied Management Consultants

Douglas Foster
Executive Director
Cape Breton Metro Planning Commission

Bob Fowler
Director of Special Projects
NS Management Board

Bob Gamble
President
NB Geographic Information Corporation

James Gannon
GIS Co-ordinator
City of Halifax

Bob Geraghty
Deputy Minister
NS Dept of Tourism and Culture

Glen Gilbert
President
Canadian Seabed Research Ltd

Greg Gillis
President
Washburn and Gillis

Ann Janega
Deputy Minister
NS Dept of Municipal Affairs

Edward Lawlor
Senior Consultant
On-Line Support Inc.

Max Lewis
Deputy Minister
NB Dept. of Finance

Maurice Lloyd
Vice President
UMA Engineering Ltd

David Loukes
Vice-President, Information Services
Geoplan Consultants, Inc

Sam Masry
President
Universal Systems Ltd

Doug MacDonald
President
Eastcan Group of Survey Consultants Ltd

Phil MacDougall
Deputy Minister
PEI Dept of Finance

Ernie MacKinnon
Deputy Minister
NB Department of Income Assistance

John McLaughlin
Professor, Survey Engineering
University of New Brunswick

Alan McLean
Professor
University of New Brunswick

Harry Mercer
General Manager Planning
NB Tel

Jim Ramsay
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PEI Dept of Finance

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NB Power

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Corporation

Andrew Thomas
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Remote Sensing of the Oceans

Terry Thomas
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Atlantic Canada Opportunities Agency

Nancy Vanstone
Director of Land Info. Mgmt. Services
NS Dept of Municipal Affairs

Al Wallace
President
Wallace, Macdonald & Lively

Andrew Wells
Deputy Minister
PEI Transportation & Public Works

John Wightman
Principal
College of Geographic Sciences

Appendix B: Atlantic Geomatics Alliance

Announcement of a Request for Proposal Atlantic Geomatics Alliance

1.0 INTRODUCTION

The Atlantic Canada Opportunities Agency (ACOA) invites private-sector firms to submit proposals for projects that will help to build an internationally competitive geomatics industry in Atlantic Canada.

The projects should lead to the development of critical mass in the private sector in technology application areas of geomatics, which:

- cater to regional strengths;
- build on earlier achievements;
- respond to regional markets; and
- have significant export potential.

1.1 Atlantic Geomatics Alliance

The projects form a central element of an Atlantic Geomatics Alliance. The objective of the Alliance is to foster the growth of the geomatics industry in Atlantic Canada through the development of technologically advanced products and services that can compete successfully in domestic and foreign markets.

A Memorandum of Understanding formalizing the Alliance was signed by the following organizations:

- ACOA;
- the Champlain Institute;
- the Geomatics Industry Association of New Brunswick (GIANB);
- the Geomatics Association of Nova Scotia (GANS); and
- the Newfoundland Association of Technical Industries (NATI).

The Memorandum of Understanding is included in the Request for Proposal.

1.2 Implementation

ACOA will provide up to $10 million over three years in assistance to the private sector towards projects for the development of new products and services in the geomatics field.

All assistance shall be at the absolute discretion of ACOA and, without limiting the generality of the foregoing, will be subject to:

- the appropriate ministerial approval;
- the necessary appropriation of funds;
- the project satisfying the criteria of the Innovation element of the ACOA Action Program; and
- the competitive process outlined in the Memorandum of Understanding.

The Champlain Institute, GIANB, GANS and NATI agree to promote the objectives and benefits of this alliance to the private sector and provide assistance in the management and coordination of the competitive process.

2.0 GENERAL

2.1 Eligibility of Applicants

The applicant must be a private-sector firm that can demonstrate that the project will have long-term benefits to the geomatics industry in Atlantic Canada. The project applicant, however, could have government agencies, research institutions and universities, as well as other private-sector firms, as subcontractors.

2.2 Nature of Projects

The Atlantic Geomatics Alliance is not a make-work program. Instead, the emphasis is on the benefits that will accrue to Atlantic Canada at end the of the three-year program. The Alliance is intended to help firms develop geomatics products and services that can be commercialized for markets in Canada and abroad.

In some cases, the public databases needed to create some advanced products and services may not yet be in place. A portion of ACOA funding may go towards building such databases if they are deemed essential to the innovation project.

2.3 Size of Projects

In order to ensure growth in different applications areas, a single project will not receive more than $4 million of the funds allocated by ACOA. While no minimum limit is set for a project, consideration will be given to projects that are large enough to help the applicant firm grow large enough to exploit markets nationally and internationally.

2.4 Cost-sharing

Subject to the conditions described in Section 1.2, ACOA will provide up to 60 percent of the total project cost. Appendix B of the Request for Proposal provides information on eligible costs. Note that eligible labour expenses are the direct wages and salaries of personnel essential to the project and on the applicant's payroll. In addition, a standard allowance for direct project-overheads is calculated at 50 percent of direct labour.

The maximum levels of support for innovation projects, where overall assistance from all levels of government exceeds $200,000, is 75 percent. For projects under $200,000, it is normally expected that a maximum of 10 percent would be contributed by the applicant. The purchase of a product or service by a government department is not considered assistance, and the stacking policy does not apply.

2.5 Miscellaneous

All costs for the development of the proposal will be borne by the project applicant.

SUBMISSION REQUIREMENTS

The applicant must submit five copies of the proposal to the Atlantic Canada Opportunities Agency Head Office.The proposal must be received by 4:00 p.m. (AST) on Friday, February 14, 1992.

Mailing Address
ACOA
Atlantic Geomatics Alliance
P.O. Box 6051
Moncton, New Brunswick
E1C 9J8

Courier Address
ACOA
Atlantic Geomatics Alliance
644 Main Street, 3rd Floor
Moncton, New Brunswick

A copy of the Request for Proposal can be obtained by writing to Mr. Alan Miller at the above address (506) 851-2470.